Application of Endoscopic Papillotomy to Carcinoma of the Duodenal Papilla : As Jaundice Reducing Treatment and as Pre-treatment of Laser Irradiation

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CITATION:

KATSUDA, HITOYASU ...[et al]. Application of Endoscopic Papillotomy to Carcinoma of the Duodenal Papilla : As Jaundice Reducing Treatment and as Pre-treatment of Laser Irradiation. 日本外科宝函 1986, 55(3): 467-472

ISSUE DATE:

1986-05-01

URL:

http://hdl.handle.net/2433/208617

Arch Jpn Chir 55(3), 467～472, Mai, 1986

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Application of Endoscopic Papillotomy to Carcinoma of the Duodenal Papilla: As Jaundice Reducing Treatment and as Pre-treatment of Laser Irradiation

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Received for Publication, Feb. 17, 1986.

Introduction

Endoscopic papillotomy was developed mainly for bloodless removal of stones from the bile duct by CLASSEN[1], KAWAI[5] and SOHMA[8] and their colleague in 1973. Recently, it has been used as a pre-treatment of endoscopic retrograde biliary drainage (ERBD) in malignant obstructive jaundice[7]. Under the circumstances, the authors performed endoscopic papillotomy on patients with carcinoma of the duodenal papilla as a jaundice reducing treatment and as a pre-treatment of laser irradiation. In these patients, endoscopic papillotomy was considered effective.

Patients and Methods

A 71-year-old male (Case 1) and a 54-year-old male (Case 2) with the chief complaint of jaundice as well as a 78-year-old female (Case 3) who visited our clinic since abnormal hepatic function was pointed out were included in the present study. In all of the three, carcinoma of the duodenal papilla had been diagnosed before surgery. Endoscopic papillotomy was performed in Cases 1 and 2 for the purpose of reducing jaundice and in Case 3, as a pre-treatment of laser irradiation.

The procedures employed were almost the same as those for ordinary endoscopic papillotomy. First of all, the state of papilla was observed in detail. Especially, the presence or absence of oral elevation covered with the normal mucosa is important. If the oral elevation completely suffers from cancerous infiltration, papillotomy will not be effective and such a case is not a indication for endoscopic papillotomy. Secondly, papillotome was inserted into the bile duct and the oral elevation over a tumor was incised by the use of cutting wave. After that, an outflow of

Key words: Endoscopic papillotomy, Carcinoma of the duodenal papilla, Jaundice reducing treatment, Laser irradiation.
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the bile was confirmed. If a small amount of bleeding should be observed, a piece of bosmin solution dispersed cloth was used to stop bleeding. After hemostasis was confirmed, a fiber scope was removed.

Results

In all the three patients, the original purposes of reducing jaundice and pre-treatment of laser irradiation were achieved. About one month after the present surgery, Cases 1 and 2 underwent pancreato-duodenectomy. According to the standards for carcinoma of the papilla, a removed tumor from Case 1 which measured 1.2×0.9 cm and showed a mass-ulcer type was classified as Stage I of $H_0Panc_0D_0N_0M_{(-)}$ and a tumor removed from Case 2 which measured 3.2×2.2 cm and showed a ulcer-mass type, as Stage III of $H_0Panc_2P_0N_1M_{(-)}$. Since Case 3 did not undergo extirpation, the stage of her tumor was unknown but it was considered that her cancer was early in Stage without jaundice.

(1) Changes in hepatic function test results and amylase values before and after dissection

i) GOT and GPT

In all the patients, GOT and GPT levels had not been high before dissection and did not exhibit any particular change after dissection.

ii) ALP and LAP

In all the patients, ALP and LAP levels had been high before dissection but almost returned to the normal levels about one month after dissection.

iii) Total bilirubin and amylase

In Cases 1 and 2, total bilirubin values were higher than 20 mg/dl before dissection, gradually decreased after dissection and were below 3 mg/dl about one month after dissection. Either before or after dissection, Case 3 did not show high total bilirubin values. Serum and urine amylase values were not high after dissection in any of the patients.

(2) Case 1

i) Endoscopic pictures and removed specimens before, during and after dissection (Fig. 1)

The upper left picture presents the orifice before dissection and reveals irregular ulcer at markedly enlarged oral elevation and orifice. The upper right picture was taken during dissection. The lower left picture shows the papilla one week after dissection and discloses that the papilla is large enough to make a catheter insert in the bile duct. The lower right is a removed specimen where there is an opening, on the oral and right side, large enough for a probe to pass.

ii) ERC pictures before and after dissection (Fig. 2)

The left picture is an ERC picture taken before dissection, which reveals an enlarged gallbladder and the bilateral peripheral parts of common bile duct compressed. The right one is an ERC picture taken one week after dissection, which discloses a marked outpouring of contrast medium in the duodenum and reduction in enlargement of the gallbladder.

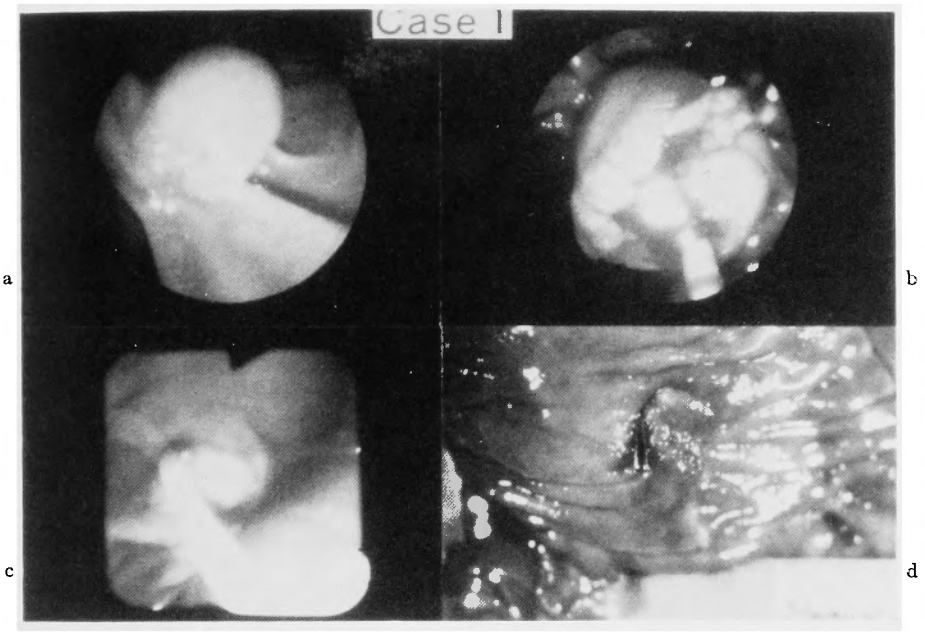
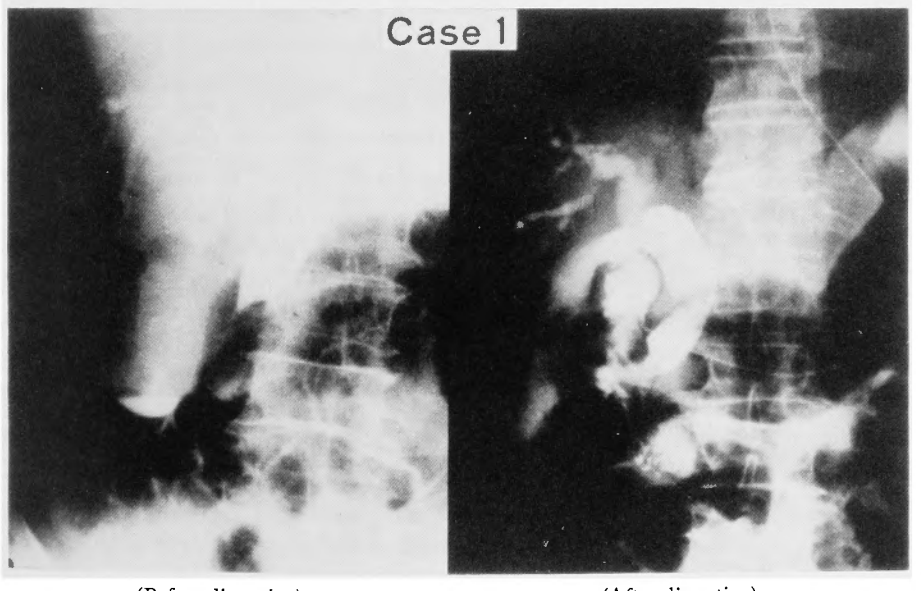


Fig. 1. Case 1: Endoscopic pictures before, during and after dissection and removed specimen.
a: Before dissection
b: During dissection
c: One week after dissection
d: Removed specimen



(Before dissection) (After dissection)

Fig. 2. Case 1: ERC pictures before and after dissection.

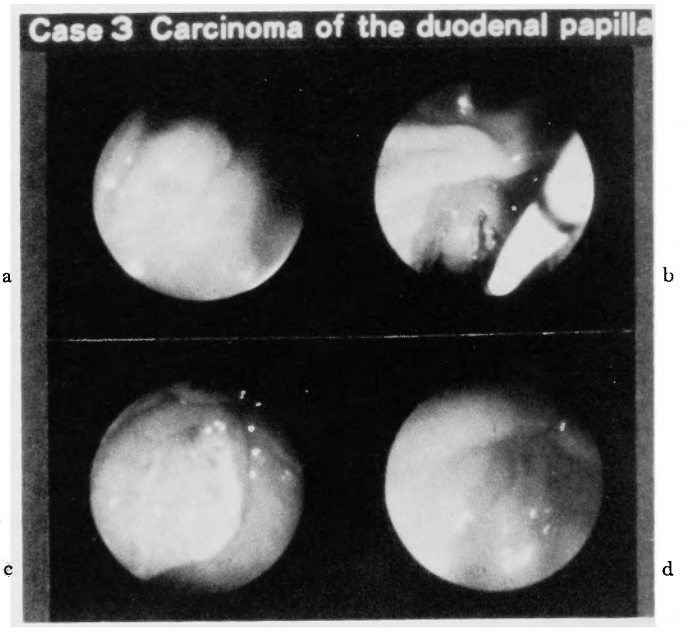


Fig. 3. Case 3: Endoscopic pictures before, during and after dissection as well as after laser irradiation.
a: Before dissection
b: During dissection
c: After dissection
d: One week after laser irradiation

(3) Case 3 (Fig. 3)

The upper left picture shows the papilla before dissection and reveals slight redness around enlarged orifice of the papilla. Cancerous cells were taken by biopsy from the reddened region. Since the patient was aged and refused to undergo radiacl surgery, endoscopic laser therapy was selected. The tumor was covered with the normal duodenal mucosa, which did not enable us to grasp the whole view of tumor. Therefore, the present method was carried out for the purpose of complete exposure of the tumor and after that, Nd-YAG laser irradiation was performed. The upper right picture was taken during dissection. The lower left one is an endoscopic picture after dissection. A total of 1,620 joule was given to the patient by irradiation. One week after irradiation, as shown in the lower right picture, the tumor almost disappeared, although fur slightly attached. Biopsy conducted at this region did not disclose any cancerous cell. As of the present, two years after irradiation, the patient is of good cheer and periodically visits our clinic.

(4) Complication

No complication was observed in association with the present method.

Discussion

Twelve years have passed since endoscopic papillotomy was developed as a bloodless therapy for choledocholithiasis. Its procedures, effectiveness and safety have been almost established and now, indications for the surgery and range of its application are expanding.

Stricture of the papilla is a typical indication for EPT. In Europe and America, EPT is carried out in a positive manner for the treatment of carcinoma of the papilla which is a malignant stricture of the papilla[2]. In Japan, there are only a few reports available[3] partly because percutaneous transhepatic cholangiography and drainage (PTCD) is the first choice as a jaundice reducing treatment for obstructive jaundice in Japan. Recently, however, endoscopic retrograde biliary drainage (ERBD) employing ERCP's and EPT's procedures has been developed as a jaundice reducing treatment for malignant obstructive jaundice and its effectiveness is reported[6].

Cases 1 and 2 included in the present study developed severe jaundice and carcinoma of the papilla. There existed a part of the oral orifice which was covered with the normal mucosa and papillotome was able to be inserted in the bile duct.

The present method is compared with PTCD. The advantage of the present method is (1) to have less stress and pain given to patients, (2) the absence of a drainage tube which does not ran the risk of infection and makes controlling easy, and (3) the presence of physiological excretion of bile, which does not develop bile acid loss syndrome. The disadvantage of the present method is its limited application. If the oral orifice completely suffers from cancer, the present method cannot be performed. In this case, dissection should not be carried out and only ERBD should be performed. When a tumor is dissected, dissemination of cancerous cells should be taken into account. According to our experience, there is no risk of the dissemination of high-frequency electric current is used on dissection. We have reached this conclusion on the basis of microscopic finding during such dissection and from removed specimens. The present method cannot be applied to all the cases of jaundice due to carcinoma of the papilla and its application should be carefully determined. The present method is effective for a part of carcinoma of the papilla with the normal mucosa remaining at the oral orifice, as in the patients the authors experienced. Further investigation is necessary on the present method as well as PTCD and ERBD.

Some investigators reported that endoscopic papillotomy was useful for diagnosis when a tumor was entirely covered with the duodenal mucosa and even biopsy did not disclose cancerous cells[3]. In Case 3 included in the present study, endoscopic papillotomy was carried out to expose a tumor completely in the duodenal cavity and then, endoscopic laser therapy was performed. Endoscopic laser therapy for gastrointestinal cancer has just started and is still under investigation[4]. We think that the authors first reported laser irradiation given to carcinoma of the duodenal papilla. From the methodological point of view, quartz fiber of Nd-YAG laser is so hard that it can be used only for direct vision type of endoscopy. This is disadvantage of the quartz fiber. Therefore, development of laser beam leading fiber and improvement of endoscopy are hopeful.

Conclusion

Endoscopic papillotomy was performed as a pre-operative jaundice reducing treatment and as a pre-treatment of endoscopic laser therapy on patients with carcinoma of the duodenal papilla. The endoscopic papillotomy was considered effective.

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和文抄録

内視鏡的乳頭切開術の十二指腸乳頭部癌への応用
—減黄処置およびレーザー照射の前処置として—

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勝田 仁康，冷水 宏行，長嶺 慎一

減黄処置およびレーザー内視鏡治療の前処置として，十二指腸乳頭部癌3例に対して内視鏡的乳頭切開術を施行し，有効と思われたので報告した．黄疸を有した2例は，乳頭切開術後1ケ月で充分な減黄効果が得られた．従来の減黄処置としての PTCD に比べて，本法の利点は，①患者に対する侵襲，苦痛が少ない．②ドレナージチューブを必要としないことから感染などの危険はなく，管理が容易である．③胆汁の生理的な排出が得られることから，bile acid loss syndrome をきたさない，などがあげられる．しかし，欠点として適応に制限がある．一方，レーザー内視鏡治療の前処理としての応用は，腫瘍を完全に露出するには，非常に有効な方法であるが，乳頭部を直視し，充分レーザー照射をするには，現在の内視鏡機種では困難であり，導光ファイバーあるいは内視鏡機種の改良が必要であると考えられた．